

A New Dwarf Toad from Southeastern Brazil

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THE authors have examined a large series of the common South American toad, *Bufo granulosus* Spix (called also *B. globulosus* Spix), from the lower Amazon (Manaus, Santarém), the Rio Araguaya, Ceará, Minas Gerais, and the upper Rio Paraguay (São Luiz de Cáceres). These show clearly that this widespread species varies geographically with considerable consistency, and that several subspecies will probably be recognized eventually.

The large series from the Araguaya (Rio Tapirapé) shows a flattened muzzle which easily separates this lot from the toads we collected at Pirapora in Minas Gerais, and, indeed, from the Manaus and Santarém examples. The São Luis de Cáceres individual exhibits a peculiar shortened physiognomy and strong infranarial crest different from all the others. In some ways this specimen approaches two toads from Asunción, Paraguay, which we were at first inclined to call *Bufo d'orbignyi* Duméril & Bibron. However, we have not seen typical examples of the latter (from Uruguay) and Boulenger's 1882 figure of the head of *B. d'orbignyi* (Montevideo specimen), which shows no serrations or warts on the cranial crests, leads us to suspect that these Asunción toads may lend weight to Parker's (1936) suggestion that the flat-headed *B. granulosus* and the deep-headed *B. d'orbignyi* intergrade in the Paraguay Basin.

Strikingly different from all the toads of this type that we have examined is a fine series collected by the junior author in the *restinga* (scrub beach vegetation) of the eastern part of the State of Rio de Janeiro. These represent a form close to typical *B. granulosus* but sharply distinct in its minute size, striking coloration and different cranial morphology. While there is a possibility that this strange little toad (perhaps the smallest South American *Bufo*) will eventually be found to intergrade with *B. granulosus*, we are not sure of this, and, on the basis of our material, venture to predict the existence, in the

littoral district of the State of Rio and perhaps a wider area, of a quite distinct, pigmy species of *Bufo* belonging to the *granulosus* complex and agreeing fairly well with the following diagnosis.

BUFO PYGMAEUS, new species

Holotype.—An adult male of average size, 37.5 mm. in snout-to-vent measurement, taken while calling by A. L. de Carvalho and L. de Castro Faria at Saõ João da Barra, at the mouth of the Rio Parahyba (right bank), State of Rio de Janeiro, Brazil, in December, 1948. To be deposited in the Museu Nacional, Rio de Janeiro.

Paratypes.—Eighty-five examples, taken with the holotype while in breeding congress, and at the same time and place. Most of the paratypes are in the Museu Nacional, Rio de Janeiro. Others are in the Natural History Museum of Stanford University (nos. 10720-10723). Two have been sent to the U. S. National Museum. The specimens are all adult, even the smallest males possessing a vocal sac and a nuptial pad on the first finger of each hand.

Other material.—Three examples in the Museu Nacional from the Restinga de Marambaia, to the westward of the city of Rio de Janeiro, indicating a general distribution in the littoral region of the State of Rio de Janeiro.

Diagnosis.—Similar in most respects to *Bufo granulosus* Spix but differing especially in the very small size (largest female 42 mm. in head and body length; largest male 41 mm.); in the much bolder light-and-dark mottling and marbling of the dorsum; in the much stronger development of a longer, curved, supratympanal crest; in the unserrated subocular crest; and, above all, in the development of a strong parietal crest.

Discussion.—This small toad is a vicarious (allopatric) form of the *granulosus* complex but, insofar as our material shows, it is a distinct species. In *B. granulosus*, most of the bony crests

TABLE 1. MEASUREMENTS OF *Bufo pygmaeus* IN MILLIMETERS

Specimens ¹	1♂	2♂	3♂	4♀	5♂	6♂	7♂	8♂	9♂	10♂	11♂	12♂	13♂	14♂	15♂	16♂	17♂	18♂	19♂	20♀	21♀
Total length, head and body	39	38	34	34	36	36	35	41	35.6	38.5	37.5	34	36	30	34	29	27.5	25	25	31	42
Length of femur.....	12	12	10.5	10	10.8	11	10.2	12.2	11.5	12	11	10	11	9	10	9	8	8	7.5	9	12.5
Length of tibia.....	11.5	11.2	10	9	9.8	10	9.5	11.2	10	11.2	11	9.8	10.5	8	9.5	8.8	7.2	7.1	7.5	8.5	12
Length of foot incl. tarsus	18	18.5	16.5	15	16	17.5	15	21	17	17	18	16	17	13	16.5	14	12	12	12	14.5	18.8
Width of head.....	13	13	11	11.6	12.5	12.5	11.5	14	12.5	13.2	13	12.2	12.5	10.5	12	10.5	9.5	9.5	9.5	11	15

¹ Specimens 1-4 in Stanford. Specimen No. 11 is the holotype.

of the head are strongly serrated or warty. This tendency is sharply reduced in *B. pygmaeus*, the almost straight, almost invariably unserrated suborbital, labial and postorbital crests being especially notable. In *B. granulosus* the supratympanal ridge is short, broken, and composed of one or two rows of warts or short ridges. In *B. pygmaeus* this crest is longer, sharper, less broken, and usually consists of one strong ridge, sharply incurved at its posterior end. The parietal crest is often indicated in *B. granulosus* by a collection of two or three warts behind the posterior curve of the supraorbital crest. There is almost never more than this in any material seen by us except a single strange example from São Luis de Cáceres, on the upper Rio Paraguay in Mato Grosso, which appears to show an approach to *B. d'orbigny* but which is vastly different from *B. pygmaeus* in many characters besides its sharp and overly developed subnarial crest. The posterior curve of the supraorbital crest in *B. granulosus* is typically formed of a series of small parallel bony folds or ridges and in an occasional example one of these is weakly continued towards the parietal region by a broken ridge. In *B. pygmaeus*, on the other hand, these supraorbital folds are much coarser and better developed (usually about four in number) and one of them (first, second, or third) is produced inward as a very strong parietal crest.

The two Paraguayan toads mentioned in our introduction have the folds of the supraorbital crest much more strongly developed and still fewer in number. In fact, these cranial characters lead us to suspect that the *B. granulosus* complex may ultimately be considered a *Rassenkreis*, the northerly forms now called *granulosus* intergrading with *d'orbigny* in the Paraguay Basin, and the latter perhaps intergrading with *pygmaeus* northward along the coast towards Rio de Janeiro.

Note on Bufo nasicus Werner.—In connection with our search through the literature we have considered the recent paper by Smith & Laurent (1950, Inst. Royal Sci. Nat. Belgique, Bull., tome 26, no. 21, 3 pp.) on the type of *Bufo nasicus* Werner, which, on the basis of insects identified from the stomach contents of the type, those authors believe must have come from eastern South America. *B. nasicus* bears no close relationship to *B. pygmaeus*. After comparison of the description and figures of Werner's type with a specimen of almost exactly the same size, we suggest that *B. nasicus* was based on an example of one of the several races of *B. typhonius*, probably from southeastern Brazil.

Note on the names Bufo globulosus Spix and B. granulosus Spix.—Spix (1824, Spec. Nov. Test. Ran.) described two new toads, *Bufo*

globulosus and *B. granulatus*, in the same paper. Peters (1872, Mb. Akad. Wiss. Berlin, pp. 223, 226) re-examined the types of both and definitely synonymized the names. Peters selected the trivial name *granulosus* instead of *globulosus*, and the species has been called *Bufo granulatus* by almost all authors. Peters's act in selecting *granulosus* over *globulosus*, although the latter name has page priority, is sanctioned by Article 28 of the International Rules of Zoological Nomenclature. However, in what we consider to be an ill-advised repeal of this basic "rule of the first reviser," the recent International Zoological Congress at Paris has made it mandatory to accept page priority as the basis for selecting names of this type, although with a provision that cases in which confusion will

be caused may be brought before the International Commission on Zoological Nomenclature for decision. *Bufo granulatus* is one of the commonest toads in South America, and we see no reason to change its name because the International Congress chose to make a basic change in the International Rules, a change that will cause a great deal of confusion.

In regard to the zoological question of the specific identity of the types of Spix's two names, Peters's decision has not been questioned, nor can we see that his decision can be assailed, for the types are no longer in existence. Nevertheless, we have compared *B. pygmaeus* carefully with Spix's descriptions and figures and do not believe that either of his names was based on *B. pygmaeus*.